

Notice of Allowability

Application No.

09/883,110

Examiner

ALEX NOGUEROLA

Applicant(s)

GASCOYNE ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 01/30/2004.
2. ☒ The allowed claim(s) is/are 1-32.
3. ☒ The drawings filed on 14 June 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date see Other, (9)
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other See Continuation Sheet.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Barrett on January 30, 2004.

The application has been amended as follows:

- a) Claim 8, line 1: "further" has been replaced with -- said plurality of electrode elements --;
- b) Claim 17, line 1: -- the step of -- has been inserted between "the" and discriminating";
- c) Claim 24, line 1: -- the step of -- has been inserted between "the" and discriminating"; and
- d) Claim 31, line 1: -- the step of -- has been inserted between "the" and discriminating".

Also, in the specification the following has been inserted

a) before the section heading "Background of the Invention" on page 2 -- This application claims the benefit of U.S. Provisional Application No. 60/211,514, filed June 14, 2000. --;

b) between "Processing" and ";" on line 29 of page 3 --, now U.S. Patent No. 6,294,063 --; and

c) between 'Fractionation'" and ";;" on line 2 of page 2 --, now U.S. Patent No. 6,287,832 --.

Allowable Subject Matter

2. Claims 1-32 are allowed.

3. The following is an examiner's statement of reasons for allowance:

a) Claim 1

The only specific means disclosed by Giddings (US 4,214,981) for trapping particles emerging from the field-flow fractionation separator are "pockets or collection ports" (col. 6, ll. 35-45). Becker et al. (US 5,888,370) only discloses providing fraction collectors or collection wells for trapping particles emerging from the field-flow fractionation separator (col. 7, ln. 58 – col. 8, ln. 12 and col. 19, ll. 33-51). Pethig (WO 97/34689 A1) provides within the disclosed device several multi-segment array isolators for trapping different portions of cells, but does not disclose "a dielectrophoretic field-flow fractionation separator configured to discriminate cells by balancing a dielectrophoretic force with a gravitational force to displace cells within a velocity profile in the separator." Traveling electric fields TWD X, TWD Y, and TWD Z are for not for further discriminating cells or particles, but for conveying them in bulk from one point in

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the device to another. The directional junction shown in Figure 5 of Pethig discriminates cells into one or the other leg of the junction by causing two independent traveling wave fields to act on the cells to create a net pull of some cells towards one of the junction legs;

b) Claims 2-5 depend directly or indirectly from allowable claim 1;

c) Claim 6 is allowable for at least the reasons set forth above for the allowability of claim 1;

d) Claims 7-11 depend directly or indirectly from allowable claim 6;

e) Claim 12 is allowable for at least the reasons set forth above for the allowability of claim 1;

f) Claims 13 and 14 depend directly or indirectly from allowable claim 12;

g) Claim 15

Giddings (US 4,214,981) traps particles emerging from the field-flow fractionation separator with "pockets or collection ports" (col. 6, ll. 35-45). Becker et al. (US 5,888,370) uses fraction collectors or collection wells for trapping particles emerging from the field-flow fractionation separator (col. 7, ln. 58 – col. 8, ln. 12 and col. 19,

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ii. 33-51). Pethig (WO 97/34689 A1) uses several multi-segment array isolators for trapping different portions of cells, but does not disclose "discriminating the cells in the separator, the discriminating comprising balancing a dielectrophoretic force with a gravitational force to displace the cells to positions within a velocity profile in the separator." Traveling electric fields TWD X, TWD Y, and TWD Z are for not for further discriminating cells or particles, but for conveying them in bulk from one point in the device to another. The directional junction shown in Figure 5 of Pethig discriminates cells into one or the other leg of the junction by causing two independent traveling wave fields to act on the cells to create a net pull of some cells towards one of the junction legs;

h) Claims 16-22 depend directly or indirectly from allowable claim 15;

i) Claim 23 is allowable for at least the reasons set forth above for the allowability of claim 15;

j) Claims 24-29 depend directly or indirectly from allowable claim 23;

k) Claim 30 is allowable for at least the reasons set forth above for the allowability of claim 15; and

l) Claims 31 and 32 depend from allowable claim 30.

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4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alex Noguerola

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02/03/2004

Primary Examiner

TC1753